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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/566,268	03/10/2006	Michael Blumenfeld	BLUMENFELT ET AL.-1 (PCT)	1676
25889	7590	06/25/2009	EXAMINER	
COLLARD & ROE, P.C. 1077 NORTHERN BOULEVARD ROSLYN, NY 11576			GREGORIO, GUINEVER S	
		ART UNIT	PAPER NUMBER	
		1793		
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		06/25/2009	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/566,268	BLUMENFELD ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	GUINEVER S. GREGORIO	1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 06 March 2009.

2a) This action is **FINAL**.                    2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 7-12 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 7-12 is/are rejected.

7) Claim(s) 7 is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:

- Certified copies of the priority documents have been received.
- Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
- Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.

4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.

5) Notice of Informal Patent Application

6) Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 7 is objected to because of the following informalities: Claim 7 recites "ta" in line 11 which appears to be a grammatical error and claim 7 recites "adjusted to that" in line 21 which also appears to be a typo. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 7-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 7 recites "burning the waste gas stream and hydrogen in the reformer" in line 18. It is unclear to the Examiner whether applicant is referring to the partial hydrogen steam or the final, pure product stream in the quoted limitation and therefore the claim is indefinite.

Claim 9 depends from cancelled claim 1.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 7-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fuderer (U.S. Pat. No. 4,553,981) in view of Engler et al. (U.S. Pat. No. 7,452,393 B2).
4. Fuderer et al. teaches steam reforming, partial oxidation and coal gasification (column 1, lines 12-15). Fuderer et al. teaches water shift gas conversion which corresponds to catalytic conversion of carbon monoxide that was formed to carbon dioxide and hydrogen (column 1, lines 30-40). Fuderer teaches a method for the complete removal of carbon dioxide from a gas stream along with the recovery of purified hydrogen (abstract, lines 10-13 and 4-5). Fuderer et al. teaches passing a gas

stream through a scrubber for the removal of carbon dioxide (column 1, lines 33-34). Furthermore, Fuderer et al. teaches after the carbon dioxide removal the effluent gas stream is subjected to nitrogen scrubbing or cryogenic purification techniques to produce a hydrogen product stream along with a by-product fuel gas which corresponds to a product stream that consists of hydrogen and a waste gas stream (column 1, lines 35-42). Furthermore, Fuderer et al. teaches the carbon dioxide-depleted effluent stream is passed to a pressure swing adsorption system capable of discharging purified, hydrogen-containing product gas. Furthermore, Fuderer et al. teaches recycling a portion of methane-containing waste gas from pressure swing adsorption system for use in steam reforming, partial oxidation or coal gasification (column 5, lines 58-68). Furthermore Fuderer et al. teaches the methane can be used for fuel which corresponds to combustion of waste gas (column 6, lines 53-54). As applicant clearly states in the remarks sent on March 6, 2009, Fuderer does not teach passing the entire waste gas stream to a combustion chamber of the reformer.

5. Engler et al. teaches a reforming unit for the production of hydrogen wherein all of the waste gas from the hydrogen purification unit is recycled to the combustion chamber of the reformer (Figure 1, line 9; Figure 2, line 109). Engler teaches a waste line after the cold box which corresponds with a partial hydrogen stream (Figure 2, line 26). Engler et al. further teaches a unit for monitoring, calculating and controlling the flow rates of air, natural gas, waste gas and synthesis gas that are supplied to the burners is designed, on the one hand, to receive a flow rate measurement from each of the flowmeters and, on the other hand, to calculate and control the degree of opening of

each of the valves which corresponds with the partial hydrogen stream is adjusted so that the partial hydrogen stream meets an energy demand of the reformer during common combustion with the waste stream (column 4, lines 30-40). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the waste gas recycling system taught by Engler et al. with the hydrogen/carbon dioxide production method taught by Fuderer et al. because Engler system is more efficient thereby reducing the amount of gas used to heat the reformer and also reducing the amount of greenhouse gas produced which is beneficial for the environment.

6. Regarding claims 8 and 11, Fuderer et al. teaches a temperature range of 350 - 400 °C for water gas shift conversion which is overlaps with 360-500 °C and Fuderer et al teaches water shift gas conversion at lower temperatures about 250 °C which is encompassed by 210-270 °C (column 3, lines 26-35).

7. Regarding claims 9 and 12, Fuderer et al. teaches using a gas scrubber to separate carbon dioxide (column 1, lines 33-34). Fuderer et al. teaches the carbon-dioxide-containing adsorber liquid is passed from flash tank through conduit to separation tank from which carbon dioxide waste gas can be removed from system through conduit (column 5, lines 16-19). Examiner takes the position that the removal of carbon dioxide gas from a liquid corresponds to a purification stage for concentrating the separated carbon dioxide because the product is pure, concentrated carbon dioxide gas that has been purified from the liquid and can therefore be utilized in special uses such as processing food in the food industry.

***Response to Arguments***

Applicant's arguments with respect to claims 7-12 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GUINEVER S. GREGORIO whose telephone number is (571)270-5827. The examiner can normally be reached on Monday-Thursday, 10:30-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curt Mayes can be reached on 571-272-1234. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Gsg  
June 21, 2009

/Melvin Curtis Mayes/  
Supervisory Patent Examiner, Art Unit 1793